Approach Spacing (for Visual Approach): Overview

6/1/00

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Overview of Discussion

- Review Work to Date

- Application Summary

- Approach Algorithms (Jonathan Hammer/Terry Abbott)

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Work to Date

- **January 19 - 21: Define Scope of Application**
  - Application will support pilot performance in maintaining a desired interval when the lead aircraft crosses the runway threshold
    - Want to avoid 'accordion' effect
  - Application will support both VFR and IFR operations with consistent functionality
    - Extensibility is critical
  - Application developed primarily for single stream operations
    - SF21 program not looking at dual stream until '03
  - Application will primarily support aircraft established on final
    - Limited time frame for ops con/requirements development

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Work to Date

- **January 19 - 21: Define Scope of Application**
  - Application will include use of call sign
    - Reduce misidentification errors
  - Application will allow pilot to select spacing interval (i.e., no spacing clearance from ATC)
    - Minimize changes to ATC procedures
- **March 30: Pilot/ATC discussion to review Con Ops**
  - Developed initial Flight ID procedure
  - Overall consensus on application
- **Several Telecons**
  - Speed Profile

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Overview of Procedure

- **Objective**
  - Enable flight crews to set and acquire a desired interval from a lead aircraft at the runway threshold
- **Scope**
  - Visual Approach Concept
  - Limited to Final Approach
    - No Approach Spacing on Base & Downwind legs
  - Extensibility
    - VFR: Pilot selectable
    - VFR: ATC clearance
    - IFR: ATC clearance

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Use of Call Sign in Traffic call-out

- **Applicability**
  - The use of call sign would be applicable to all traffic advisories (assuming appropriate ADS-B/CDTI equipage) but controllers will not be required to use this procedure. For OpEval, however, we may want to maximize the use of this procedure for data collection purposes.
- **Phraseology**
  - Use the three-letter identifier instead of company (e.g., U-A-L instead of United).
  - Consider abbreviating the standard traffic call-out to include only o'clock and range (i.e., do not include 'direction' as specified in 7110.65M).
  - EXAMPLE- "United 123, Traffic 12 o'clock, 4 miles, U-A-L 456"

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Use of Call Sign in Traffic call-out

- **Phraseology: additional options**
  - **Place company in addition to three letter identifier**
    - ""United 123, Traffic 12 o'clock, 4 miles, United U-A-L 456"
  - **Use phonetic spelling for part of three letter identifier**
    - ""United 123, Traffic 12 o'clock, 4 miles, Uniform-Alpha-L 456"
- **Mixed equipage**
- **Draft waiver & DCP**

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Flight Crew-
Set desired interval at runway threshold

- **Implications for requirements**
  - Capability to select differing intervals
  - Knowledge of planned final approach speeds for ownship and lead aircraft
    - Lead aircraft planned final approach speed will be provided in ADS-B message (minimize pilot input)
  - Knowledge of runway information
    - Database can be in CDTI or provided through FMC

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Flight Crew-Algorithm

- **Proposed Speed Profile**
  - Requirement for operationally acceptable speed commands (i.e., montonically decrease w/ minor increase in speed)
    - Speed band 150 KIAS to 200
    - No more than 200 at 7
    - No more than 190 at 6
    - No more than 170 at 5
    - No more than 150 at 4

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Flight Crew-
Determine if Spacing Interval can be achieved

- No consensus on whether go/no-go status is required
- Approach algorithm will provide speed commands at the upper limit of boundary (e.g., 180 kts)

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